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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,877	06/02/2004	Kevin P. Pearce		3876

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EXAMINER	
RODRIGUEZ, WILLIAM H	
ART UNIT	**PAPER NUMBER**
3746	
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05/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/709,877	PEARCE, KEVIN P.	
	Examiner	Art Unit	
	William H. Rodriguez	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 June 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the amendment and remarks filed 05/27/2006.

Response to Arguments

1. Applicant's arguments filed 05/27/2006 have been fully considered but they are not persuasive.

On page 9 of the response, applicant argues "Nowhere within 5,205,116 does Ng teach that the stoppage of flow is alternated and at no time is there a period when both manifolds are deprived of fuel such as is accomplished by the invention at less than 50% load". In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., stoppage of flow for both manifolds when load is less than 50%) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

On page 10 of the response applicant argues "Ng does not modulate the individual injectors to control fuel to the combustion chamber". In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., modulating the individual injectors to control fuel to the combustion chamber) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Nevertheless, this feature not recited in the claims is taught by Ng. Ng teaches modulating each selected group of fuel injectors independently (group I is independent of group II, cl. 4 ll. 15-22 and figure 3).

Also, in figure 4 Ng teaches that each injector of the selected group of injectors comprises a valve 38 to selectively and independently control the selected group of fuel injectors.

On page 10 of the response, applicant argues "Iwai never shuts off all the fuel flow to the engine; The invention is 'digital" rather than "analog"; each individual injector can be controlled to provide fuel injection from none to a maximum value, there may be times when all injectors are dispensing fuel and other times when no fuel is being dispensed". In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., shutting off all fuel to the engine, etc) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "at least one operating sensor, means for receiving sensor signals from a selected operating function of said turbine engine, a programmable electronic control unit, means for directing said fuel injector control signals to said selected fuel injector groups" in claims 1-14 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 3, the phrase *"may be" in line 1* renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are in fact performed by the invention, and are part of the invention or if such recitation is just a possible intended operation that may or may not happen. Appropriate correction is required (i.e., replace "may be" by --are--).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by **Ng (US 5,205,116).**

With respect to claims 1-6, **Ng** (particularly figures 3 and 4) teaches and apparatus for controlling the injection of fuel in a turbine engine having a combustion chamber, said apparatus comprising: at least four fuel injectors (30a, 30c, 30e, 30g, 30i, 30k, 30m, 30o, 30q, 30s—forming group I) selectable arranged in independent groups (group I is independent from group II (30b, 30d, 30f, 30h, 30j, 30l, 30n, 30p, 30r, 30t)) for delivering fuel in pulses to said combustion chamber, a plurality of sensors (not schematically shown but inherent in this type of system) sensing operational parameters of the turbine engine (24, 26, 28), a programmable electronic control unit (microprocessor or microcomputer type) for receiving and comparing the value of said sensor signals to the value of a desired signal, and for generating fuel injector control signals to said selectable groups (cl. 4 ll. 15-22) of injectors, and means for directing the fuel injectors control signals to said selected fuel injector groups (Group I or group II)—[see particularly Figures 1, 3, 4; and cl. 3 line 47 to cl. 4 line 22], each fuel injector of said selected fuel injector group atomizes the fuel and delivers it to said combustion chamber, each selected fuel injector group having an equal number of fuel injectors in each group, said selected groups of fuel injectors being controlled in response to selected operating function of said turbine received by said sensor, said orientation of said selected injectors penetrating said combustion chamber of said turbine is parallel to the axis of said turbine engine's shaft, the injectors in each selected group are equally distributed radially around the combustion chamber.

Since Ng has the same structure as claimed, it is inherent that Ng's device would be able to perform the recited method steps in claims 7-14.

As clearly shown in Figure 3 of Ng, the programmable electronic control unit 22 receives sensor signals 24, 26, 28 from sensors detecting operational parameters (i.e., load, speed, temperature, etc, see cl.3 ll.48-54) of the turbine engine. Then, these sensor signals received from the sensors are compared to their desired values. Based on the difference the controller sends a signal to the fuel controller 23 to adjust the fuel injection through the selected fuel injector groups accordingly.

7. Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by **Iwai et al. (US 5,339,635).**

With respect to claims 1-6, **Iwai** (particularly figures 1, 2 and 8-10) teaches and apparatus for controlling the injection of fuel in a turbine engine having a combustion chamber, said apparatus comprising: at least four fuel injectors selectable arranged in independent groups (cl. 5 ll. 57) for delivering fuel in pulses to said combustion chamber, a plurality of sensors (not schematically shown but inherent in this type of system) sensing operational parameters of the turbine engine (load signal, rotational speed, etc), a programmable electronic control unit 70 (microprocessor or microcomputer type) for receiving and comparing the value of said sensor signals to the value of a desired signal, and for generating fuel injector control signals to said selectable groups (cl. 5 ll. 45-50) of injectors, and means for directing the fuel injectors control signals to said selected fuel injector groups, each fuel injector of said selected fuel injector group atomizes the fuel and delivers it to said combustion chamber, each selected fuel injector group having an equal number of fuel injectors in each group, said selected groups of fuel injectors

being controlled in response to selected operating function of said turbine received by said sensor, said orientation of said selected injectors penetrating said combustion chamber of said turbine is parallel to the axis of said turbine engine's shaft, the injectors in each selected group are equally distributed radially around the combustion chamber.

Since Ng has the same structure as claimed, it is inherent that Ng's device would be able to perform the recited method steps in claims 7-14.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Rodríguez whose telephone number is 571-272-4831. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

William H. Rodríguez 5/16/07
Primary Examiner
Art Unit 3746